

REMARKS

Claims 1-34 are pending in this application. Claims 1, 21-23, and 31 have been amended. Claims 33 and 34 are new. Claims 9-20 have been withdrawn, and claims 1, 9, 15, 18, 21-23, and 33 are independent.

Claim Rejection – 35 U.S.C. § 112

Claim 31 has been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

As described in the present specification, the cover separating the medium from a particle produced during an annealing process (see paragraphs 0071, 0072, 0073, and 0077) is such that the outer surface of the cover is a boundary between the cover and the medium. In order to clarify this aspect, claim 31 has been amended to define the outer surface of the cover as the claimed boundary. Applicants request reconsideration and withdrawal of this rejection.

Claim Rejections – 35 U.S.C. § 102

Claims 1-5, 8, and 26-32 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Muralidhar et al. (U. S. Patent 6,297,095 – “Muralidhar”). Claims 21-23 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Muralidhar. Applicants have amended claims 1 and 21-23 to clarify that the claimed “cover” covers the entire surface and is formed within the medium and set away from each surface of the medium. Applicants request reconsideration of the rejection based on the claims as amended.

The rejection indicates that Muralidhar's encapsulating layer 106 formed on nanoclusters 104 (Figure 24), or the nitride layer 107 forming a barrier to oxygen for nanoclusters 104 (Figure 26), constitute the claimed "cover." Applicants submit that Muralidhar's encapsulating layer 106 or nitride layer 107 do not at least cover the entire surface of the nanoclusters 104 and are not formed in a medium removed from each surface of the medium.

Applicants submit that in Muralidhar, nanoclusters 104 are sandwiched between the film 102 and the film 106, 107, or 112, such that spatially non-uniform stress is likely to be exerted to the nanoclusters 104. Also, Applicants submit that a stress will be exerted to an interface between the films, which will cause film defects and in the worst case, film detachment may occur. In the vicinity of each nanocluster 104, defects are likely to occur at an interface especially between the film 102 and another film (e.g., film 108, 106 in Fig. 24, film 107 in Fig. 26, and film 112 in Fig. 27), with the result that a charge leak path is formed. Subsequently, this would cause charge transfer between adjacent nanoclusters 104 and make the electrical properties unstable. If a defect takes place at or near a point of contact of the nanocluster and the two films between which the nanocluster are sandwiched, electric charge may leak from the nanocluster to a film 108 (Figs. 24 and 26) or 114 (Fig. 27). Also, electric field concentration is also likely to occur.

In contrast, according to the present invention, the entire surface of the particle(s) is covered with the same material so that there is no film interface that is connected to the particle(s). Thus, it is unlikely that charge leakage between the particles and/or from a particle to a film will take place. In addition, the particles are surrounded by a structure that is

comparatively high in isotropy, a stress, if any will be uniformly dispersed, so that risks of defect generation and locally high defect density are low. For the above reason, good charge retention property is achieved.

Thus, Applicants submit that Muralidhar fails to anticipate the claimed invention. Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103

Claims 6, 7, 24 and 25 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Muralidhar in view of Bawendi et al (U. S. Patent Application Publication No. 2005/0072989 – “Bawendi”). For at least the same reasons as above for claims 1 and 21-23, Applicants submit that Muralidhar in view of Bawendi fail to anticipate each and every claimed element. Accordingly, Applicants request that the rejection be reconsidered and withdrawn.

Furthermore, Applicants provide herewith a translation of the priority Japanese Patent Application (March 15, 2003), which predates Bawendi’s effective filing date of October 6, 2003. For at least this additional reason, Applicants request that the rejection be reconsidered and withdrawn.

New Claims

Claims 33 and 34 have been added to cover a further aspect of particles distributed three-dimensionally. Applicants submit that the claimed three-dimensional arrangement of the particles distinguishes over Muralidhar that has a two-dimensional arrangement of particles.

Conclusion

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert W. Downs (Reg. No. 48,222) at the telephone number of (703) 205-8000, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachment: Verified English Translation of
Japanese Appl. No. 2003-067659